

**Secondary thickening in pteridophytes.**—The known cases of secondary thickening in recent Pteridophyta have been brought together by HILL<sup>23</sup> in a useful résumé. After stating the criteria for secondary growth, Botrychium, which has a distinct cambium, and Ophioglossum, which lacks a definite layer, are described, followed by Angiopteris and Marattia, in which a cambium forms a few xylem elements. CORMACK's observations on the secondary wood in the nodes of Equisetum are cited, though no reference is made to the cambium in the young cone as reported by JEFFREY.<sup>24</sup> The other cases of secondary growth include Psilotum, *Selaginella spinulosa*, and several species of Isoetes, especially *I. hystrix*, which may show a cambium outside the vascular cylinder.—M. A. CHRYSLER.

**The cell wall.**—Whether isolated portions of protoplasm without nuclei are capable of surrounding themselves with walls or not has long been in dispute. Nearly twenty years ago PALLA claimed that isolated portions of protoplasm could still form membranes. Later observers claimed that the non-nucleate fragments might still be connected with nucleated portions of the protoplasm by connecting fibers. Studies of the rhizoids of *Marchantia polymorpha* and the stinging hairs of *Urtica dioica* bring PALLA<sup>25</sup> to reassert his original view that non-nucleate portions of protoplasm can form membranes. He admits, however, that the portions of protoplasm must contain, as reserve substance, a material which can be used in building up a wall.—CHARLES J. CHAMBERLAIN.

**South African cycads.**—PEARSON<sup>26</sup> has begun the publication of a series of field notes on South African cycads, which promise to be of great interest. The first paper deals with *Encephalartos Friderici Guilielmi*, *E. Altensteinii*, *E. villosus*, and an unnamed species of *Stangeria*. A summary of the observations is as follows: subterranean branching is a marked feature of the first-named species and of *Stangeria*; in the first two species of *Encephalartos* the strobili are lateral, occurring in cycles of three to six about the vegetative apex, which continues the growth of the stem; there is evidence that strobili are produced much more freely in exposed than in shaded situations; it is probable that entomophily occurs in *E. villosus*.—J. M. C.

**Apogamy in *Elatostema*.**<sup>27</sup>—TREUB adds *Elatostema acuminatum* (Urticaceae) to the increasing list of plants in which apogamy has been described.

<sup>23</sup> HILL, T. G., On secondary thickening in recent Pteridophyta. *New Phytologist* 5:208-214. 1906.

<sup>24</sup> JEFFREY, E. C., The development, structure, and affinities of the genus *Equisetum*. *Mem. Boston Soc. Nat. Hist.* 5:155-190. *pls.* 26-30. 1899.

<sup>25</sup> PALLA, E., Ueber Zellhautbildung kernloser Plasmateile. *Ber. Deutsch. Bot. Gesells.* 24:408-414. *pl.* 19. 1906.

<sup>26</sup> PEARSON, H. H. W., Notes on South African Cycads. I. *Trans. S. African Phil. Soc.* 16:341-354. *pls.* 6-8. 1906.

<sup>27</sup> TREUB, M., L'apogamie de l'*Elatostema acuminatum* Brogn. *Ann. Jard. Bot. Buitenzorg* 20:141-152. *pls.* 4-II. 1906.